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BRADLEY OR BERGSON?

DR. BRADLEY has summed up his *Weltanschauung* in last October's *Mind,* in an article which for sincerity and brevity leaves nothing to be desired. His thought and Bergson's run parallel for such a distance, yet diverge so utterly at last that a comparison seems to me instructive. The watershed is such a knife-edge that no reader who leans to one side or the other can after this plead ignorance of the motives of his choice.

Bradley's first great act of candor in philosophy was his breaking loose from the Kantian tradition that immediate feeling is all disconnectedness. In his "Logic" as well as in his "Appearance" he insisted that in the flux of feeling we directly encounter reality, and that its form, as thus encountered, is the continuity and wholeness of a transparent much-at-once. This is identically Bergson's doctrine. In affirming the "endosmosis" of adjacent parts of "living" experience, the French writer treats the minimum of feeling as an immediately intuited much-at-once.

The idealist tradition is that feelings, aboriginally discontinuous, are woven into continuity by the various synthetic concepts which the intellect applies. Both Bradley and Bergson contradict this flatly; and although their tactics are so different, their battle is the same. They destroy the notion that conception is essentially a unifying process. For Bergson all concepts are discrete; and though you can get the discrete out of the continuous, out of the discrete you can never construct the continuous again. Concepts, moreover, are static, and can never be adequate substitutes for a perceptual flux of which activity and change are inalienable features. Concepts, says Bergson, make things less, not more, intelligible, when we use them seriously and radically. They serve us practically more than theoretically. Throwing their map of abstract terms and relations round our present experience, they show its bearings and let us plan our way.

Bradley is just as independent of rationalist tradition, and is more thoroughgoing still in his criticism of the conceptual function. When we handle felt realities by our intellect they grow, according to him, less and less comprehensible; activity becomes inconstruable, relation contradictory, change inadmissible, personality unintelligible, time, space, and causation impossible—nothing survives the Bradleyan wreck.

The breach which the two authors make with previous rationalist opinion is complete, and they keep step with each other perfectly up to the point where they diverge. Sense-perception first develops into conception; and then conception, developing its subtler and more contradictory implications, comes to an end of its usefulness for both authors, and runs itself into the ground. Arrived at this conviction, Bergson *drops* conception—which apparently has done us all the good it can do; and, turning back towards perception with its transparent multiplicity-in-union, he takes its data integrally up into philosophy, as a kind of material which nothing else can replace. The fault of our perceptual data, he tells us, is not of nature, but only of extent; and the way to know reality intimately is, according to this philosopher, to sink into those data and get *our sympathetic imagination to enlarge their bounds. Deep* knowledge is not of the conceptually mediated, but of the immediate type. Bergson thus allies himself with old-fashioned empiricism, on the one hand, and with mysticism, on the other. His breach with rationalism could not possibly be more thorough than it is.

Bradley's breach is just as thorough in its first two steps. The form of oneness in the flow of feeling is an attribute of reality which even the absolute must preserve. Concepts are an organ of misunderstanding rather than of understanding; they turn the "reality" which we "encounter" into an "appearance" which we "think." But with all this anti-rationalist *matter,* Bradley is faithful to his anti-empiricist *manner* to the end. Crude unmediated feelings shall never form a part of "truth." "Judgment, on our view," he writes, "transcends and must transcend the immediate unity of feeling upon which it can not cease to depend. Judgment has to qualify the real ideally. . . . This is the fundamental inconsistency of judgment, . . . for ideas can not qualify reality as reality is qualified immediately in feeling. . . . The reality as conditioned in feeling has been in principle abandoned, while other conditions have not been found."[1]

Abandoned in "principle," Mr. Bradley says; and, in sooth, nothing but a sort of religious principle against admitting "untransformed" feeling into philosophy would seem to explain his procedure

[1] *Mind,* October, 1909, p. 498.

from here onwards. "At the entrance of philosophy," he says, "there appears to be a point at which the roads divide. By the one way you set out to seek truth in ideas. . . . On this road what is sought is ideas, and nothing else is current. . . . If you enter here you are committed to this principle. . . . [This] whole way doubtless may be delusion; but, if you choose to take this way . . . no possible appeal to designation [*i. e.,* to feeling] in the end is permitted. . . . This I take to be the way of philosophy. . . . It is not the way of life or of common knowledge, and to commit oneself to such a principle may be said to depend upon choice. The way of life starts from and in the end it rests on dependence upon feeling. . . . Outside of philosophy there is no consistent course but to accept the unintelligible. For worse or for better the man who stands on particular feeling must remain outside of philosophy. . . . I recognize that in life and in ordinary knowledge one can never wholly cease to rest on this ground. But how to take over into ultimate theory and to use there this certainty of feeling, *while still leaving that untransformed,* I myself do not know. I admit that philosophy, as I conceive it, is one-sided. I understand the dislike of it and the despair of it while this its defect is not remedied. But to remedy the defect by imparting bodily into philosophy the 'this' and 'thine,' as they are felt, to my mind brings destruction on the spot."[2]

Mr. Bradley's "principle" seems to be only that of doggedly following a line once entered on to the bitterest of ends. We encounter reality in feeling, and find that when we develop it into ideas it becomes more intelligible in certain definite respects. We then have "truth" instead of reality; which truth, however, pursued beyond a certain practical point, develops into the whole bog of unintelligibilities through which the critical part of "Appearance and Reality" wades. The wise and natural course at this point would seem to be to drop the notion that truth is a *thoroughgoing* improvement on reality, to confess that its value is limited, and to hark back. But there is nothing that Mr. Bradley, religiously loyal to the direction of development once entered upon, will not do sooner than this. Forward, forward, let us range! He makes the desperate transconceptual leap, assumes *beyond* the whole ideal perspective an ultimate "suprarelational" and trans-conceptual reality in which somehow the wholeness and certainty and unity of feeling, which we turned our backs on forever when we committed ourselves to the leading of ideas, are supposed to be resurgent in transfigured form; and shows us as the only authentic object of philosophy, with its "way of ideas," an absolute which "can be" and "must be" and therefore "is." "It *shall* be" is the only candid way of stating its

[2] *Ibid.,* pp. 500–502.

relation to belief; and Mr. Bradley's statement comes very near to that.

How could the elements of a situation be made more obvious? Or what could bring to a sharper focus the factor of personal choice involved?

The way of philosophy is not the way of life, Mr. Bradley admits, but for the philosopher, he continues, it seems to be *all there is*—which is like saying that the way of starvation is not the way of life, but to the starveling it is all there is. Be it so! Though what *obliges* one to become either such a philosopher or such a starveling does not clearly appear. The only motive I can possibly think of for choosing to be a philosopher on these painful terms is the old and obstinate intellectualist prejudice in favor of universals. They are loftier, nobler, more rational objects than the particulars of sense. In their direction, then, and away from feeling, should a mind conscious of its high vocation always turn its face. Not to enter life is a *higher vocation* than to enter it, on this view.

The motive is pathetically simple, and any one can take it in. On the thin watershed between life and philosophy, Mr. Bradley tumbles to philosophy's call. Down he slides, to the dry valley of "absolute" mare's nests and abstractions, the habitation of the fictitious suprarelational being which his will prefers. Never was there such a case of will-to-believe; for Mr. Bradley, unlike other anti-empiricists, deludes himself neither as to feeling nor as to thought: the one reveals for him the inner *nature* of reality perfectly, the other falsifies it utterly as soon as you carry it beyond the first few steps. Yet once committed to the conceptual direction, Mr. Bradley thinks we can't reverse, we can save ourselves only by hoping that the absolute will re-realize unintelligibly and "somehow," the unity, wholeness, certainty, etc., which feeling so immediately and transparently made us acquainted with at first.

Bergson and the empiricists, on the other hand, tumble to life's call, and turn into the valley where the green pastures and the clear waters always were. If in sensible particulars reality reveals the manyness-in-oneness of its constitution in so convincing a way, why then withhold, if you will, the name of "philosophy" from perceptual knowledge, but recognize that perceptual knowledge is at any rate the *only complete kind of knowledge,* and let "philosophy" in Bradley's sense pass for the one-sided affair which he candidly confesses that it is. When the alternative lies between knowing life in its full thickness and activity, as one acquainted with its *me's* and *thee's* and *now's* and *here's,* on the one hand, and knowing a transconceptual evaporation like the absolute, on the other, it seems to me that to choose the latter knowledge merely because it has been

named "philosophy" is to be superstitiously loyal to a name. But if names are to be used eulogistically, rather let us give that of philosophy to the fuller kind of knowledge, the kind in which perception and conception mix their lights.

As one who calls himself a radical empiricist, I can find no possible excuse for not inclining towards Bergson's side. He and Bradley together have confirmed my confidence in non-"transmuted" percepts, and have broken my confidence in concepts down. It seems to me that their parallel lines of work have converged to a sharp alternative which now confronts everybody, and in which the reasons for one's choice must plainly appear and be told. Be an empiricist or be a transconceptualist, whichever you please, but at least say why! I sincerely believe that nothing but inveterate anti-empiricist prejudice accounts for Mr. Bradley's choice; for at the point where he stands in the article I have quoted, I can discover no sensible reason why he should prefer the way he takes. If he should ever take it into his head to *revoke,* and drop into the other valley, it would be a great day for English thought. As Kant is supposed to have extinguished all previous forms of rationalism, so Bergson and Bradley, between them, might lay post-Kantian rationalism permanently underground.

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THE DURATION OF ATTENTION, REVERSIBLE PERSPECTIVES, AND THE REFRACTORY PHASE OF THE REFLEX ARC

IT would seem that one of the most assured conclusions of psychological research is about to be surrendered. The doctrine of the intermittent character of attention is proving to be only an "idol of the cave." Recent experiments on touch, electrical stimulation, and vision indicate that there is no fluctuation in the sensation if care is taken to exclude distracting stimuli, movements, twitching, etc.

The weak point in the old experiments, and in some of the new ones, is that only minimal stimuli can be employed—the weakest sounds, pressures, grays, electrical stimulations. Besides, the intensity of these can not always be kept uniform. It is rather curious, therefore, that most, if not nearly all, of the recent discussions of the question have entirely overlooked the contributions which the experimental study of reversible perspective illusions has already yielded, and the effective contributions which their study under improved

experimental conditions promises to yield toward the solution of this question. In these illusions we have stimuli which undergo the same process of fluctuation as pressures, sounds, or brightnesses. But while the fluctuation in the case of the latter is not readily noticed unless the stimuli are so weak as to disappear entirely, or almost entirely, in one phase of the intermittence, with reversible illusions we can work with stimuli of almost any intensity. That the reversions are quite independent of the intensity of the stimulus is a matter of common observation. But it has also been subjected to experimental test. In a series of experiments upon various reversible figures (drawings) it appeared that a maximal intensity is even better than a minimal. Thus a white drawing on a black ground (where accordingly there is a maximal brightness of the lines) is preferred to the opposite arrangement, because the reversions are more clearly and readily perceived.[1] With the drawings placed at three distances from the eye, four, fifteen, and thirty-six inches, the middle distance, corresponding to the normal reading distance, was preferred by most observers, because it yielded clearer and less ambiguous perceptions. The one observer who preferred the greater distance did so for the same reasons. Here, then, intensity of sensation rather furthers than hinders the fluctuation. This would seem to contradict the results of Schröder, Sinsteden, Mohr, and others, who found a certain "unclearness," or "obscuration of details" essential for many reversions. It will be found, however, that this applies to reversions of tridimensional objects in which, if the binocular details were perfectly obvious, no reversions at all would occur.

What, now, are some of the aids and suggestions offered by the study of these illusions to the solution of the question of the intermittence of attention?

If the reversions were due solely to the fluctuation of attention it would seem that the perception of one of the perspectives should be weaker than the other. Specifically, the anomalous or non-predominant perspective (which it is found practically all figures possess) should appear less distinct than the predominant. It should appear somewhat hazy. But experiments show that it comes to consciousness with the same clearness, primacy, coerciveness, and spontaneity as the predominant.[2] The only blurring observed in my own case was during the moment of reversion. This occasional blurring, which did not affect the clearness of the supervening perspective, would point to some important physiological change as its cause.

[1] Wallin, "Optical Illusions of Reversible Perspective," 1905, pp. 154, 156, 158, 260 f.

[2] *Op. cit.*, pp. 289, 310.

That this change does not appear to reside in the lens or the ciliary muscle appears from Loeb's and my own experiments upon subjects whose muscles of accommodation had been temporarily paralyzed. On the other hand, numerous experimenters (Sinsteden, Necker, Loeb, Hoppe) have experienced sensations, usually sensations of a sudden movement or twitching, simultaneous with the reversion. In my own case these sensations were quite prominent in reversing a tridimensional loop.[3] In another series with skeleton models the sensations were found to differ for the two eyes, and for different fixations.[4]

Moreover, Loeb and Wundt have both observed that eye movements increase the instability of the figure, and I frequently observed that the tendency of a drawing to become flat after being steadily regarded for some time could be largely counteracted by eye movements. Loeb also noticed that when one eye was screened it was seen to move at the moment of reversion. In an experiment with momentary exposures, lasting .03 sec., I had hoped to exclude the movement factor, but it appeared from the introspections that half of the observers were conscious of the fact that the eye swerved or dropped or tended to exploit the figure. Even if these movements or movement tendencies did not occur until after the exposure they would probably exert some influence upon the after-image, and since this behaves like the primary impression, the resulting sensation or perception would necessarily be modified.

If we may assume, as Gordon did, that a more complex figure holds the attention longer, the case for attention is not helped; for in my own series of experiments the simplest drawing reversed the slowest.[5] It reversed the slowest because it offered less motives for eye movements.

With these presumptions in favor of a peripheral explanation of the fluctuations (as due to instability of the eyes) it would be well if one of our psychological laboratories would attack the problem anew with the greatly improved forms of apparatus which now exist for the accurate recording of eye movements. From such records it should now be possible to ascertain whether eye movements invariably coincide with the period of reversion, or whether they precede or follow it, or occur quite independently of the reversion.

At the same time, it is quite doubtful whether an explanation in terms of eye movements (once they have been indubitably established) will tell the whole story, as indicated by the following considerations.

[3] *Op. cit.*, p. 26.
[4] *Op. cit.*, pp. 241, 242, 263.
[5] *Op. cit.*, p. 254.

In another experiment[6] in which the time of the perspectives in my own case was found to be 1.97 sec. for the non-predominant and 3.30 secs. for the predominant, it appeared that the time of the fluctuations for the reversible illusions corresponded with my efficiency curve, which in turn corresponded with the respiratory and Traube-Hering blood pressure undulations, as measured by Pillsbury.[7] Likewise Bonser found a similar correspondence by comparing parallel plethysmographic and sphygmographic tracings with the reversions of a pyramid. The crest of the "attention wave," as he viewed it, corresponded with the valleys in the blood pressure curve. So it seems that there is a connection between the fluctuations and the Traube-Hering blood pressure oscillations.

With these facts at my disposal the conclusion followed that the explanation of the so-called fluctuations of attention observed in reversible illusions and other stimuli has a common twofold ground: certain disturbances in the peripheral organ and certain bodily cycles, notably the blood pressure rhythm, possibly the respiratory rhythm, and possibly the cortical cell fluctuations. The fluctuations are thus simply the psychical correlates of bodily processes of fatigue and recuperation. The predominant perspective, which is the most stable and the easiest to envisage, represents the resting or recuperating period.

Latterly it has seemed to me that some of the more recent investigations[8] in neurology may throw some light upon the problem, especially studies of the reflex arc conduction. The laws which govern the reflex arc will apply, it would appear, to the stimuli under consideration.

In distinction from the nerve trunk, the reflex arc shows a latent time, which, according to Sherrington, has its seat in the gray matter of the synapsis; and a response which is rhythmical in character. The fluctuations vary from 7.5 to 12 per second in the flexion reflex (the rate given by Schäfer is from 10 to 12), irrespective of the nature of the stimulation. The periods are thus fixed within limits. The rhythmical reflexes show periods of excitation and refractory states. These refractory states—periods when the mechanism manifests lessened excitability—are an essential part of most reflexes. They are found in the nerve fibers, once a second, in the flexion reflex of the spinal dog (2.3 per sec.), the cross-stepping reflex in the spinal dog (2.5 per sec.), in the scratch reflex (4.5 per sec.), the

[6] *Op. cit.*, pp. 245 f.

[7] Pillsbury, "Attention Waves as a Means of Measuring Fatigue," *American Journal of Psychology*, XIV., 1903, Table IV.

[8] Admirably summarized in Sherrington, "The Integrative Action of the Nervous System," 1906.

reflex movements of swallowing in the narcotized cat (2 per sec.), and eye reflexes. With the latter it is found that the chances of a stimulus releasing a reflex is 50 per cent. less for one second during the refractory phase than one second later. The refractory phase is longer for visual than tactual and thermal stimuli, and is about the same for weak and strong stimuli (4.5 as against 5.8 per second). It sometimes lasts six times as long as the "period of activity" (Sherrington).

It would thus seem that the fluctuations which we observe in reversible illusions (or with faint gray rings or sounds) are the psychic correlates of the rhythmical and refractory phases of the reflex arc. The fact that the refractory phase differs for visual, tactual, and thermal stimuli accords well with the differences in time which have been found in psychological laboratories on fluctuations for the corresponding stimuli. The fact that there is a variation in the rhythm, or time of the refractory phase, of the reflex arc, within certain limits, accords with similar variations observed in psychological experiments on fluctuations. The fact that the refractory phase, which represents a period of lessened efficiency, a fatigue or recuperative period, is longer (sometimes six times) than the "period of activity," accords well with the measurements of reversible illusions, in which it was found that the one perspective lasted longer than the other, and in which it was inferred that, since it was the normal, predominant perspective which was the most stable, this was a period of recovery.[9] The fact that the time of the refractory phase is almost constant under weak or strong stimulation finds a parallel in these illusion fluctuations. Furthermore, the refractory phase varies with conditions of fatigue, practise, and the use of certain drugs. Likewise in one series of experiments with skeleton models practise made itself manifest in a shortening of the time needed to reverse of from 25 to 50 per cent., and in a special practise experiment the percentage of successes in the second half was nearly twice that of the first half. Effects of fatigue appeared in another experiment, where the slowing of the reversions in the second half affected especially the predominant perspective, which would correspond with the recuperative or refractory period of the reflex arc.

It would therefore appear that further control experiments on these illusions under conditions of decided general fatigue and under the influence of strychnine (which seems to convert inhibition into excitation, producing quickened reactions, sometimes eventuating in a condition of tetanus) should offer a fruitful method of solving the

[9] Wallin, *op. cit.*, p. 253.

problem—by some one with the ingenuity to perfect a sufficiently refined experimental procedure.

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THE NINTH ANNUAL MEETING OF THE AMERICAN PHILOSOPHICAL ASSOCIATION

THE Yale sessions of the Association on December 27, 28, and 29 last were more than ordinarily successful from first to last. Though regrets were heard that the philosophers had encamped far from the psychologists in Boston, nobody seemed to take it much to heart, for the attendance was fully up to the normal, if not above it. Considering the inevitable diversity of themes, the papers were admirably grouped, so as to permit those of a session being discussed together; this was particularly true of the second session and somewhat less so of the first. Partly because of this good management by the executive committee and partly by reason of the absence of other distracting scientific meetings, the general interchange of criticism and opinion became conspicuously full and lively; and yet the burden of responsibility for this stimulating outcome lay elsewhere. It was the sharpening of questions and the concentration upon two of these that told most. Of the fourteen papers read on Monday and Tuesday, seven may fairly be described as having focused, more or less clearly, upon methodology, in its widest sense. Three of these seven, three of the remaining other seven and the three leading papers on Wednesday morning pitted realist against idealist in a series of encounters lacking nothing of briskness. Most striking and singular—what, too, must have puzzled the laity who attended the sessions—was the invisibility of pragmatist badges and the almost unbroken silence on those topics pragmatic with which reading-room gossip has identified the new movement. Save in one or two addresses, which were explicitly historical or classificatory, not so much as the name appeared. In reality, though, it had vanished only from the surface of events; its "isms" had evaporated, along with looser first generalities from its nascent stage, but its spirit lived at a deeper level in the arguments of the realists. Their reiterated insistence upon the necessity of facing concrete situations and solving them on the basis of consciously accepted, definite, well-narrowed presuppositions was but the practising, rather than the preaching of pragmatism. This attitude

was particularly vigorous and determined in the discussions about methodology.

Mr. Charles Gray Shaw opened the meeting Monday afternoon with a paper on "Renunciation and the Ethics of Rigorism." Describing eudæmonism and rigorism as the two basic types of instinctive morality in the past history of conduct, Mr. Shaw pointed out the inaedquacy of each to explain the facts of behavior; ethics goes on without promise of pleasure or threat of pain, and against each theory violent reactions are repeatedly setting in, according to the times. There is a new tendency to-day to get beyond the old alternative of acquiescence and self-assertion; value and dignity are displacing rectitude and duty as ethical categories. But there is a genuine value in renunciation which must always be reckoned with. In comment Mr. W. H. Sheldon questioned Mr. Shaw's description of renunciation as an instinct, but suggested that courage might be an example supporting that interpretation.

An acute and lively analysis of the American situation, past and present, was Mr. Morris R. Cohen's "The Conception of Philosophy in Recent Discussion." The St. Louis movement marked an era of system-building; its end came with the founding of the *Philosophical Review* which represented criticism in the classic German sense of the term; the third epoch dawned with the JOURNAL OF PHILOSOPHY, PSYCHOLOGY, AND SCIENTIFIC METHODS, standing for the scientific handling of philosophical problems. Mr. Cohen declared this last school has solved no problems, but has only encouraged scientists to encroach upon philosophy. No other thinkers, however, have accomplished much more, because now academic courtesy and now timidity keeps them away from the special sciences. For the sake of culture, which is the supreme need of the American college, philosophers must make bold to sweep through the many fields of research and begin building systems anew. In doing this, they will perforce come to recognize their kinship with the artist and the literary essayist.

"Metaphysical Movements in Science," by Mr. James H. Hyslop, depicted the physicists' struggle toward a clear understanding of matter. The Greeks explained material actions by internal forces and so came to panpsychism. Newton, on the contrary, allowed matter no self-movement, but conceded to it the power of limiting the motion of other matter. Modern physics is now but a step removed from the Hellenic belief; chemistry professes to find compounds which induce actions without entering into the processes of the latter, while it is even claimed in some quarters that all chemisms must be induced by such an external stimulus. Ether is fast being vested with the attributes of orthodoxy's God; already omnipresent

and omnipotent, it may soon be counted omniscient. Contemporary physicists are talking old-school theology in a new speech.

Brother Chrysostom, speaking on "The Mathematical Habit in Philosophy," criticized the great historical exemplars of this attitude; as Descartes and Spinoza, so too Kant was mathematically minded, built on too few postulates, and worked these to the bitter end. These errors of procedure inhere in the mathematical habit, which, therefore, must be condemned for philosophical purposes. Mr. Herbert Martin presented a new way of interpreting the syllogism to students; it was said to prove advantageous in that it spared beginners the trouble of memorizing the traditional valid forms. In objection Mr. Royce declared that Mr. Martin's devices for reduction varied from case to case, so that the old difficulty of learning many applications was only shifted, not removed.

After this paper, the general discussion turned to Mr. Cohen's and Mr. Hyslop's addresses. Touching the former, Mr. Perry granted the propriety of speculation and system building, but insisted that this enterprise be held rigorously apart from scientific method. Mr. Ladd, referring to both papers, declared that there is no breach between science and philosophy.

A very large and alert audience heard the three papers of Tuesday morning, and the debate these aroused was the warmest and most prolonged of the entire meeting.

Mr. E. G. Spaulding set forth "The Logical Structure of Self-refuting Systems." His arguments the ear followed with difficulty because of their extreme condensation and intricacy; their main point was that neither phenomenalism nor absolutism can consistently locate itself in the world as described by itself—or, what is the same thing, either theory nullifies itself as soon as it applies its own conclusions to its own existence or to its own procedures. The development of this point carried Mr. Spaulding through the question about the internality or externality of relations and then through the kindred one about the infinite regress. By eliminating other possible interpretations, Mr. Spaulding reached the conclusion that relations are external to their terms; that the infinite regress can be truly given and conceived, not in a series of mental acts, but all at once by intention; and that only some kind of realism is not a self-refuting system. In the extensive criticism from the floor which ensued, Miss Calkins and Mr. Creighton led the idealists' attack, their most emphatic protest being that Mr. Spaulding had simply defined phenomenalism and absolutism to suit himself and then deduced their own destruction from them; genuine idealism, however, did not correspond at all to the picture Mr. Spaulding drew. Mr. Woodbridge and Mr. Pitkin, from the realistic side, centered

their objections about the speaker's apparent willingness to give relations position in space and so to make entities of them.

Its deductive methods assailed by Mr. Spaulding, idealism next heard its inductive reasoning no less severely arraigned by Mr. Ralph Barton Perry, in his discourse on "The Ego-centric Predicament." Mr. Perry's demonstration that the only inductive method, namely, that of agreement, which the idealist can use at all for his main thesis can not be used so as to prove anything drew fire from more quarters than any other single paper did. That experience determines its objects (symbolically, that $(E)R^{c}(T)$ defines T) is absolutely beyond proof, inasmuch as every investigation of the matter itself involves the constant presence of the experience-object relation. Mr. Lovejoy said that, however this might be, idealism might still find powerful support in the antinomies of space, especially in the fact that infinity can not be truly given in thought. Mr. Montague cited from Mr. Bradley a misuse of the ego-centric predicament. Mr. Creighton said that, so long as the ego is regarded as an item or a thing in the world, all realistic criticism of idealism misses fire; the ego is not a thing, but a principle. Miss Calkins found peculiar significance in the ubiquity of the subject-object relation; but Mr. Perry, replying, confessed that, to him, ubiquitous characteristics often seem the least important. Further comments, too long to quote here, were made by Mr. Woodbridge, Mr. Aikins, Mr. Hibben, Mr. Hume, and Mr. Pitkin.

Novel analogies were brought to light in Mr. W. E. Hocking's essay on "The Ontological Worth of Ideas and Feelings." Limiting himself to epistemology and to a finite knower, Mr. Hocking compared the independence of an object from thought with the independence of a sovereign from his subjects. The independence of the self is measured by the degree of externality of its objects. Ideas are to sensations as the state is to its natural data, such as its economic circumstances, its customs, institutions, etc. Like the state's laws, ideas confer freedom and individuality upon sensations. Sense *qualia* are nature, while ideas are at once an instrument of the self and of nature. Mr. Hocking developed also an interesting analogy between the tendency toward angularity of form away from roundness in organic evolution and the tendency toward discontinuity in the evolution of knowledge. He conceived sensation as the osmosis between the *Ding an sich* and the *ego;* this, he said, was Kant's own opinion. Idealism has its valid ontological argument; the object of knowledge finds its proof of existence in the very knowledge of it, inasmuch as the object, as idea, is forced upon the knower by nature. Logic itself is nature. Unfortunately, Mr. Hocking's hearers had battled so lustily over the two previous essays that they had no

strength left to discuss him as fully as he deserved. Mr. Urban pointed out the limitations of Mr. Hocking's political analogy.

The afternoon session began with Mr. C. A. Bennett's paper, "In what Sense can an Experience in Time be Timeless?" The speaker described various types of esthetic experience in which the sense of drag, succession, and anticipation goes lost.

Mr. W. P. Montague's "Mind and Life as Forms of Energy" outlined a hypothesis making consciousness potential energy and the *qualia* higher derivatives of the same. Ten analogies between conscious states and potential energy were indicated, among them the following: as potential energy accumulates when a moving body or force is redirected, so too does consciousness occur when the nervous impulse is turned down motor tracts; potential energy is not physically actual, nor is consciousness; neither has position in space; each has intensity; and each displays polarity (*e. g.*, the magnetic or electric positive-negative and the empirical subject-object relation). This hypothesis, if accepted, puts an end to the two great controversies, that between mechanism and vitalism, and that between parallelism and interactionism. Mr. Marvin doubted the wisdom of trying to advance by such analogies; only a physical theory which would clear up some difficulty in psychology, or a psychological theory doing as much for physics would be worth considering. In reply, Mr. Montague said that from the physical equations for potentials Weber's law may be deduced. Mr. Creighton objected to all such speculation on the ground that "potential energy" is a mere conceptual abstraction and so recognized by physicists; it is not a reality in any more than empirical sense. Mr. Woodbridge, on the other hand, was perplexed by the apparent implication that consciousness was somehow equally distributed throughout and between all objects "in" it or contributory to its eventuation, just as magnetic or gravitational stresses and pulls are exerted by all bodies in the system and somehow by the intervening ether.

Similar disapproval was shown toward Mr. Walter B. Pitkin's paper on "The Epistemological Dilemma of Biology in Reference to Space." The contention of this essay was that, in the light of the processes of reflex and voluntary imitation, biologists must accept space as more than empirically real and as the setting in which those problems arise to whose solving all organic evolution is supposed to contribute, provided biology is to use, as its fundamental categories of explanation, "agent," "environment," "adaptation," "selection," "heredity," and the like. Mr. Bakewell pronounced the account Mr. Pitkin gave of the idealistic space theory a caricature. Mr. Perry asked whether the criticisms founded on a study of the imitative reflex held against objective or absolute idealism;

to which the reply was made that, in strict logic, only the more than empirical reality of space was a necessary assumption, if any current biological category of explanation is to be used: whether some types of idealism are compatible with a theory of real space, is a question which may perhaps be answered affirmatively.

"The Generating Problem," the next topic, was handled by Mr. Karl Schmidt along lines continuing the development of his previous studies which look toward the building of "A Philosophical Platform." His endeavor was to depict the facts and doubts out of which philosophical inquiry properly arises.

Some impressive statistics were adduced by Mr. J. G. Hume in his practical address on "The Significance of Suicide," which demonstrated the need of revising the educational program in order to cope with the evil of self-destruction.

Tuesday evening in Lampson Hall, the President of the Association delivered his official address on "The Philosophical Aspects of Evolution." Mr. Hibben came out squarely against the "intellectual mysticism" of James and Bergson. After sketching the evolution of consciousness, the qualitative differences of function that accompany quantitative changes of organic structure, and the enormous gap which must always lie between reasoning mind and the next lower type, Mr. Hibben broached the question whether reason measures up to its self-set task of conceiving clearly the most intimate and elusive processes of life itself. In opposition to Bergson's thesis that change, the continuum and flux of events, can only be appreciated in an intuition higher than conceiving, he protested that ideas are not discontinuous, lifeless things, but rather organic, growing continua which take up fresh particulars indefinitely and transform themselves in adaptation to these latter. Intellect will never be displaced nor fail irretrievably in any problem—of biology or any other science—which can be formulated. A complete mathematical expression of life processes is theoretically possible, and, if never attained, then only because of purely technical or experimental obstacles.

Following this address was a smoker at the Yale Graduates' Club, where most of the philosophers joyfully forgot time, space, the absolute, and other office-hour worries.

Wednesday morning turned out to be a somewhat unpropitious time for the general discussion of time, inasmuch as many members, trying to serve two masters, left for the psychologists' convention before or during the debate. None of the three leading papers there read received fair attention from the floor. Mr. Arthur O. Lovejoy led off with an illuminating analysis of tendencies in Anglo-American philosophy with respect to the problem of time. He found two groups

whose members oppose each other, pair by pair, as follows: rationalism *versus* anti-intellectualism; eternalism *versus* temporalism; idealism *versus* realism; and "this-worldliness" *versus* pragmatic nominalism. The main issue is between eternalism and temporalism. Idealism is the refinement of the naïve man's eternalism, which he derives from the timelessness of truth, as truth. The strong point of radical empiricism is that real time resists conceptualization; while this is no positive disproof of the reality of time, it does argue successfully against intellectualism. Mr. F. J. E. Woodbridge said that the classical opinion about time, as typified by Kant and Royce, is suspected to-day largely because the ego as a world-knower is doubted. The absolutist view is taken from the vantage-point of Newtonian physics, which allowed the space concept to dominate the time concept; whereas now it is to the biologist and his categories of time that we turn for a profounder interpretation. Knowledge is accordingly looked upon as a natural event, with the finding of whose antecedents and consequences one should be wholly concerned. "How can experience give us knowledge of reality?" is an obsolete question, for knowledge has no reference to anything save its own antecedents and consequents, being not at all a representation of nature. Time is, therefore, not a mystery, but a perfectly natural peculiarity, to be naturally investigated. Mr. Josiah Royce, in a delightful anecdote, expressed his general agreement with Bergson and other defenders of real time, but at the same moment his belief that they have only elaborated the obvious and the indisputable. What they have altogether missed is that real novelty, which can never be perceived directly or described, is a supersensuous interpretation based on willed presuppositions about the world. The unique, the truly individual, can never be a datum of sense; hence the time series is a product of will, an artefact for the conceptualizing of reality. In the ensuing discussion of these three papers, Mr. Perry raised the question as to the imperceptibility of duration, and Mr. Lovejoy set forth his difficulties in the matter; but, owing to the dwindling audience and the lack of time for the business meeting of the Association, debate languished, much to the regret of the faithful few who tarried.

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REVIEWS AND ABSTRACTS OF LITERATURE

Attention. W. B. PILLSBURY. New York: The Macmillan Co. 1908. Pp. 346.

This book is an extended exposition of the facts bearing on the nature and conditions of attention, its relation to other conscious processes, and of theories concerning it. The intention is not to present new experimental facts or to launch a novel theory but, rather, "to bring together in an orderly way the results of the different researches" and "to harmonize the known facts with one another" (preface). It is, therefore, in no sense pioneer work, but a survey of fields already traveled.

Attention as a conscious state is "an increased clearness and prominence of some one idea, sensation, or object, whether remembered or directly given from the external world, so that for the time it is made to constitute the most important feature of consciousness" (p. 308). The important term here is, of course, "clearness." Regarding its relation to intensity the author says that most authorities regard the effects of attention as different from those of an increased intensity of external stimulation. Structural differences between intensity and clearness it appears, however, difficult to exhibit. But they seem certainly to differ in their effects and, perhaps chiefly, in their conditions. Increase in intensity, for instance, makes discrimination more difficult, increase in clearness easier. Further, concerning conditions, "we might define the intensity as the degree of efficiency of a sensation in consciousness due to the energy expended upon the sense organ, attention as an increase in efficiency due to subjective conditions alone" (p. 9). This means, since clearness is the structural substitute for attention, that the quest for the peculiar conditions that determine the becoming clear of any conscious state must lie among subjective elements alone.

Among conditions, be it specially noted, motor activities do not figure (p. 27). Motor activities, which "succeed, or at most accompany, the attention" (p. 25) are: movements of adaptation of the sense organ; general correlated movements depending on the nature of the stimulus having, however, "no influence upon the efficiency of the attention," but being, nevertheless, "different enough to mark that particular act of the attention off from every other" (p. 18); overflow effects on the voluntary muscles not dependent on the nature of the stimulus and neither useful nor symbolic of the nature of attention (p. 20); and, finally, the movements of respiratory and circulatory processes. That none of these processes, although many of them serve as differential marks for any "particular act of the attention," are listed as conditions is a point to which shall recur later.

The real conditions of attention are classified as subjective and objective. Objective are those that "depend upon the nature of the external world at the time" (p. 27) and subjective, the resultants of "the earlier impressions that the individual has been subjected to, including, of course, the influences that have affected the ancestors and have given the individual in question his hereditary bent" (p. 28). Objective con-

ditions favorable to attention include intensity (chiefly changes in intensity) of sensation, the summation effects of weak stimuli, a rapid rate of change in intensity, greater rather than less extensity of sensation for sight and touch and moderate duration. We must, I take it, reckon with these as conditions only in the sense that they favor the activity of the more weighty subjective conditions, for attention is "an increase in efficiency due to subjective conditions alone." One effective subjective condition is the idea or image in mind just previous to the act of attention; the others are more remote—the general mood of the moment, the general training of the individual, the social forces that have influenced him and his inherited characteristics—both racial and individual. Neither interest nor the feeling of activity is a proper condition of attention, since the former is either a mood accompanying all attention or a general name for the subjective conditions when attributed to the object, and the latter consists of movement sensations.

The pages thus explicitly devoted to an isolation of the subjective conditions of attention—admittedly those alone of vital significance—result, as it seems, in the general statement "that the conditions of the attention are as wide-spread as the conditions of consciousness itself," that, indeed, "every event that has at any time affected the individual in any way is at some time likely to determine in some degree the direction and efficiency of his attention," that, furthermore—to go beyond the individual—"through heredity and social environment everything that has helped to select for survival his ancestors or the race at any time will play some part, great or small, in deciding between the many stimuli offered on any occasion" (p. 52). This view of the conditions of attention receives in nearly every chapter such cumulative emphasis that it finally figures as perhaps the dominating *motif* of the book, although it does not, as may readily be seen, isolate any specific complex of processes as conditions of the clarifying and selective essence of attention apart from those of the rest of consciousness.

Under the caption, "The Effects of Attention in Consciousness," Pillsbury reviews investigations on the number of separate objects that can be attended to, on the duration of a single act of the attention, and on fluctuation. For a theory of fluctuation he is inclined to favor an hypothesis of central rather than peripheral processes, involving a fatigue of sensory cells, of reinforcing cells (corresponding, for instance, to the ideas that precede changes in the interpretation of ambiguous geometrical figures) and including, finally, the physiological rhythms originating in the circulatory and respiratory centers in the medulla.

We come next to methods of measuring the attention. Measures of attention are divided into three groups: direct, the measuring of accomplishments in some allotted task (discrimination of two points on the skin, reaction times, marking letters of one kind on a page, etc.); indirect, through fluctuation or through the mean variation in a series of measurements; and by the amount of stimulus necessary for distraction. None of these, however, appears to give a univocal test of attentive capacity. They are open chiefly to two objections—that some special

facility acquired through training, rather than attention, is involved, and that the test may be in part dependent on other capacities—acuteness of the sense organ, retentiveness, etc. Certain tests are, therefore, suggested which, the author thinks, it would be well to try (p. 92). The difficulties mentioned, however, appear to be inherent, since attention "is a word that covers so many different processes that no single test will probably ever be devised that shall measure all the part processes satisfactorily" (p. 91).

The discussion up to this point (pp. 1–93) might be taken as one logical division of the book. It attempts, essentially, to analyze the nature and the conditions of attention. The next seven chapters (pp. 94–218)—more than a third of the book—are different, the analysis being, not of the attentive process itself, but, rather, of the rest of consciousness. The motives of this analysis are two: first, to state the author's own doctrine of ideas, perception, memory, will, reason, feeling, and the self (to each of which subjects a chapter is given), and, secondly, to canvass these various processes in an attempt to show just where and how attention functions in each one. It is really an examination of the field of psychology with the emphasis on the functional significance of attention. Since nothing new is added to the previous analysis of the attention process itself; since, further, the author reduces, in each chapter, the conditions that determine the particular mental capacity under discussion to the conditions that he had before enumerated as determining attention, we may pass over these chapters briefly. The conclusion, in any one chapter, may be substituted, with appropriate variations, for that of another. A few quotations will show this: "We find that they too (ideas) are subject to the control of the same factors which we found to be active in the control of sensorial attention"—the ideas in mind, the general attitude of the hour, etc. (p. 112). "The conditions of attention are at the same time the conditions of reason. One involves the other and can not be separated from it" (p. 182). "Taken together, the self and attention are so closely related as to be scarcely distinguishable. Conditions of attention and what we know as the self are for practical purposes identical" (p. 217).

The attempt in these chapters, it is clear, is to identify so far as possible the conditions of attention with those of other conscious processes. The identity can not, however—if the term "attention" is to retain significance—be complete, and it would have been more fruitful, the reviewer thinks, if the emphasis had been laid rather on the respects in which they are not identical. Such an emphasis might have helped towards an isolation of the differential conditions of attention, an isolation not attained in the discussion specifically devoted to conditions. As it is, one feels that little of importance is done in reiterating the identity of the conditions of all conscious processes. We are primarily interested in *differentiæ;* if investigation has not yet disengaged those of attention it would seem that the discussion of it, particularly of its functional relations, could be compassed in small space.

Following the excursus on the functions of the attention we find, in

the closing chapters of the book, a return to what might be called the main theme—the analysis of the attention process itself—in a series of discussions of theory. Only two of these chapters ("Attention in Pathology and in Development" and "Applications to Education") form exceptions to this statement. At the outset of his theoretical discussions the author states and accepts the doctrine of psychophysical parallelism. A consideration of the structure and functions of the nervous system—following, so far as the cortex is concerned, Flechsig's view of the functions of the association areas—then leads him to conclude that "the anatomical seat of attention is apparently the frontal lobes" (p. 235). More important, however, than any attempt to assign to attention a local habitation, is the discussion of the physiological basis of the attention. To this chapter, since it reveals, at least to the reviewer, the author's fundamental position more clearly than any of the other discussions, our further remarks will be given. The other theoretical chapters are devoted to apperception in relation to attention, and to a history and critique of psychological theories.

The problem is, of course: What physiological processes are involved in the selecting and clarifying of one mental content at the expense of others? Such a process must be due, as many authors have shown, to reinforcement (or facilitation), to inhibition, or to both. The author includes both. An examination of certain phenomena of reinforcement and inhibition enables him to conclude that any cell, sensory or motor, will, by its mere activity, increase or decrease the activity, or tendency thereto, of any other cell, sensory or motor, however separated, however devious, apparently, the connection between them may be (pp. 240, 248). There is, namely, exhaustive reciprocal inhibition and reinforcement among all sensory and motor cells. One sees, thus, an ample mechanism in the nervous system for reinforcement and inhibition. The intimate character of either of these processes is not discussed; certain phenomena are exhibited, merely, which are interpreted as demonstrating the existence of the neural mechanism.

Any cell may, then, indifferently reinforce or inhibit any other cell. As for the *differential process,* that would account for the reinforcement or inhibition of any particular group of cells—for the clarifying or selecting of any particular conscious content—we find the following statements: "If every sensation has an influence upon every other sensation, it would only be natural to suppose that it would have a more marked influence upon the related sensations than upon those which are entirely foreign" (p. 250). "Earlier experiences," furthermore, "tend to organize the cells affected into groups, and so to determine the paths along which any reinforcement from a given stimulus will extend" (p. 252). These *organized groups* are "systems which are closely related on the nervous side to what Stout calls apperceptive systems on the mental side" and, "when any general or specific stimulus arouses one part of the system the other parts are thrown into a state of greater or less activity" (p. 255). It would appear, therefore, by applying these principles appropriately, that a perception or idea is reinforced by the presence of a related idea, a

related mood, related past experience, related social experience, etc. In a word, the various subjective conditions of attention and, it may be added, of other conscious processes as well, are, thus, brought within the physiological theory.

Now of what constituent elements are these neural *systems* or *organizations,* of which the author speaks, composed? This is a most vital problem, for one's answer to it must inevitably determine one's main procedure in matters psychological. The author's presuppositions concerning the physiological nature of such organizations are unmistakable, both from explicit statement and from implicit emphasis. "Each system . . . is made up of a certain number of sensory cells together with the associatory cells of the frontal lobes" (p. 256). And, although at the beginning of the chapter reinforcement and inhibition were said also to obtain reciprocally between motor and motor and between sensory and motor cells, one finds, as the discussion progresses, that the interrelations of sensory cells, sensory areas, and sensory systems, figure more and more exclusively as the physiological basis of attention. Throughout the book, indeed, one is struck with the permeating emphasis on the sensory, or impression, aspect of experience. The reactive aspect is almost wholly neglected. Motor processes do not, as we have seen, figure as conditions of attention. Sensory impressions appear, furthermore, to persist *unaltered* throughout one's experience instead, for instance, of fusing and losing their identity in neural organizations that result in turn from unitary adaptive reactions (see, particularly, chapters VII. and VIII.). Everywhere one is impressed with the implicitly axiomatic attitude that experience consists only of impressions, revivals of impressions, and interrelations of impressions. This, one may think, might with fairness be called an example of the sensation bias in psychology.

Although, in short, the book sincerely aims to be a representative account of the various views that are held about attention, it shows no trace of the fundamental thought, however different the specific theories, underlying the work of Dewey, Baldwin, Münsterberg, W. MacDougall, or Judd. This fundamental thought is that not impression only, but reaction as well, must be included in any adequate account of consciousness; that not merely the afferent nervous system, but likewise the efferent, is involved, and is involved directly, not simply indirectly, through the motor *sensations* which the reactions arouse. Is it not probable, since an organism's chief concern is selective adaptation to an environment, that its reactions, or *the neural organizations that represent them,* are among the physiological determinants of its experience? Is it not possible, for instance, when eye movements appear to determine which of two competing colors in retinal rivalry shall persist in consciousness, that it is not a case of reinforcement or inhibition of one *sensory* center by another (p. 246), but an inhibition of one adaptive response by another? that, in general, so-called sensory reinforcement or inhibition is between reactions (or the totality of cortical organizations underlying them) and not between sensory organizations direct? It seems, further, quite appropriate to think, if an "object" is chiefly determined in consciousness by the

use to which it is put (p. 66), that such "use" means one's selective system of reactions towards it, and that, when the *total* nervous organization corresponding to such reactions is aroused, we have a perception or an image of the object. This implies, of course, that no mere organization of sensory systems is adequate. Is it not, finally, a suggestive view which regards our discriminative reactions on our environment as the *selective* mechanism in experience and that it is the rearousal of cortical organizations at the basis of these reactions, rather than sensory organizations merely, that determines whether or no an object shall engage attention, whether or no, consequently, it shall become "clear" in consciousness? According to such a view the author's subjective conditions of attention (idea in mind, mood of the moment, whole past experience, etc.) would reduce to systems of individual selective habits of reaction, or corresponding mental attitudes, each with its correlate of definitely organized cortical processes.

These few suggestions are meant merely to remind any who needs reminding that the motor interpretation in psychology is still active; they are also symptomatic of the lively surprise that many have felt on finding in the present work, which sincerely, and in certain directions successfully, seeks to give an adequate résumé of representative facts and theories, no indication that the force of the underlying thought of a growing group of workers had been at all felt.

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Social Organization: A Study of the Larger Mind. CHARLES HORTON COOLEY. New York: Charles Scribner's Sons. 1909. Pp. xvii + 426.

Social psychology, like its cognate sister sociology, is still in a formative state. It is, nevertheless, works of the merit of Professor Cooley's "Social Organization" that will hasten its recognition as one of the accepted psychological disciplines.

In a previous book on "Human Nature and Social Order" Professor Cooley presented society as it exists in the social nature of man; in the present volume, on the other hand, he conceives life as one human whole, and approaches it from the mental rather than from the material side. "If we cut it up," he says in his preface, "it dies in the process; and so I conceive that the various branches of research that deal with this whole are properly distinguished by change in the point of sight rather than by any division in the thing seen." Hence, the view-point of the author in the book before us is focused on the enlargement and the diversification of intercourse.

Mind, as defined by Professor Cooley, is an organic whole made up of cooperating individualities, in somewhat the same way that the music of an orchestra is made up of divergent but related sounds; so, in the study of the social mind, he fixes his attention on the larger relations of mental experience.

The unity of the social mind he holds consists not in agreement, but in organization, "in the fact of reciprocal influence or causation among

its parts, by virtue of which everything that takes place in it is connected with everything else, and so is an outcome of the whole." This differentiated unity of mental and social life is what he characterizes as social organization.

Professor Cooley's method of approach is what he calls sympathetic introspection, in which the student puts himself into intimate contact with various sorts of persons and allows them to awake in himself a life similar to their own, "which he afterwards, to the best of his ability, recalls and describes."

The primary aspects of social organization, including social and individual aspects of mind, primary groups and ideals, and the extension of the latter, are treated in Part I.; communication, its growth and enlargement, and its relation to individuality, superficiality, and strain, is the central theme of Part II.; democracy, the enlargement of consciousness, theories of public opinion, crowd excitement, and the trend of sentiment are discussed with marked clearness in Part III.; the social classes, hereditary and caste principles, the growth and outlook of caste, the open classes, and the ascendency of wealth and a capitalistic class are judicially treated in Part IV.; Part V. deals with institutions in relation to the individual, the family, the church, education, fine arts, and economic conditions; and Part VI. discusses the public will in relation to government and the extension of state functions.

This topical summary will give the reader a notion of the wide scope of this altogether able treatment of social organization in relation to the larger mind. It may be added in closing that the book is a notable contribution to the new and growing science of social psychology and that it is certain to be welcomed by students of education and the philosophical disciplines, as well as by the larger public interested in problems of social welfare, philanthropy, and government.

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Education Through Music. CHARLES HUBERT FARNSWORTH. New York: American Book Co. 1909. Pp. 208.

Both by the soundness of its general principles and by the careful and always practical working out of its details in relation to the successive years of music work in schools Professor Farnsworth's book is an admirable guide for teachers, and should exert a wide and wholesome influence on our school music-teaching.

The first five chapters concern themselves with the fundamental principles. Thus chapter I. insists that experience must always precede formal instruction; where it is lacking it must be supplied by the teacher. and in all cases it must be her aim to organize it in such a way that all particular facts may be seen by the pupils in their relation to broad musical effects. In chapter II. the relations of interpretation and structure are first made plain, and then these are analyzed into seven constituents, viz.: interpretation into (1) quality of tone, (2) quantity of tone, (3) rate of movement, and (4) articulation; and structure into (1) pulsation, (2)

duration, and (3) pitch. The next two chapters are devoted to a more minute discussion of interpretation and structure respectively, and contain much admirably enlightening matter. The fifth chapter shows in a general way how all musical ideas are to be developed by experience, in the natural sequence of observing, acting, picturing, and writing the symbols.

On this foundation the rest of the book builds, discussing in regular order the work to be taken up in each of the eight school years. This part of the discussion is too detailed to summarize. Suffice it to say that the methods for making real to the child such subtle matters as the ratio of tone durations to metrical pulse, the characteristics of the seven scale-steps, the nature of harmony, and the complex ways in which repetition is used as the basis of musical design are at once ingenious and simple, and the basic rule of having all effects observed before they are described is never lost sight of.

One adverse criticism suggests itself. Although the point is well made (see pages 16 and 22) that "while at first thought music seems to appeal directly to the feelings, it really does not do so, but reaches the feelings through ideas which deal with definite forms"—a point, by the way, which needs constant emphasis in view of the wide-spread tendency to narrow music down to a mere "language of the emotions"—the author, when he comes to close quarters with these definite forms, as for instance at page 24, seems to fall somewhat into the very fallacy he has been deprecating, identifying the musical idea too much with the literary idea with which it is associated. ("A wise teacher will lead the pupil to conceive first what the music means as a whole. Is it a brisk winter song, or does it regret the passing of the flowers?", etc.) On the whole, however, the untranslatability of music, its uniqueness in our mental experience, is well apprehended.

Not the least interesting chapter in Professor Farnsworth's thoughtful book is the concluding one on "The Broad and the Narrow View of Education in Relation to Music." One wishes that all school principals and all parents might read it.

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JOURNALS AND NEW BOOKS

THE PSYCHOLOGICAL REVIEW. November, 1909. *Some Experiments on the Color Perceptions of an Infant and their Interpretation* (pp. 363–376): HELEN THOMPSON WOOLLEY. – Baldwin's method used with a child throughout its seventh month showed the perception of red, blue, and yellow as colors. Preference for red and indifference to green were striking. After the seventh month interest shifted from relatively passive sense impressions, such as color perception, to the more active aspect of manipulative experience. Other descriptive adjectives are understood before those of color because of their superior practical import in the

child's experience. *On Ocular Nystagmus and the Localization of Sensory Data during Dizziness* (pp. 377–398): EDWIN B. HOLT. – Question: What organs yield the sensation of rotation? Answer: This is not a sensation in the ordinary meaning of that word, but the process most nearly parallel to the feeling of rotation is one kind of innervation process. A two-page bibliography accompanies. *Mental Diagnosis by the Association Reaction Method* (pp. 399–409): FREDERICK G. HENKE and MILTON W. EDDY. – A series of experiments from which it is concluded (1) that correct diagnosis by this method is reasonably certain in simple cases; (2) in such cases, impartial observers, *e. g.*, an American jury, could draw right conclusions; (3) the subject's knowledge of the method does not prevent a correct diagnosis; (4) the situation may be so complicated as to render diagnosis impossible. *Binocular Rivalry* (410–415): B. B. BREESE. – A series of experiments giving (1) the effect of variation in the size of the stimuli; (2) the effect of distinctness of the images upon rivalry; (3) peripheral rivalry. *Minor Studies from the Psychological Laboratory of Wellesley College: communicated by* ELEANOR A. MCC. GAMBLE. *I. Intensity as a Criterion in estimating the Distance of Sounds* (416–426): ELEANOR A. MCC. GAMBLE. – There is found considerable evidence for, and little or no evidence against, the ordinary belief that intensity is the main factor in estimating the distance of sound. *II. The Perception of the Distance of Sounds* (427–430): DANIEL STARCH. – The least perceptible difference in distances is 15 cm. for sounds a meter away. Accuracy is the same for all directions tested. Introspections in 5,200 cases indicate as bases of judging differences in intensity, in pitch, and in quality, by far the most important being intensity. *Discussion: Darwinism and Logic: A Reply to Professor Creighton.* J. MARK BALDWIN (431–436). – Mechanism and teleology are naturalistic or empirical categories, both valid, but both restricted, in their proper use, and both superseded in a hyperlogical mode of experience.

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. Band XIV., Heft 1. October, 1909. *Sur la conception Aristotélienne de la causalité* (pp. 1–28): L. ROBIN. – An explanation of Aristotle's assimilation of causal to syllogistic necessity, in spite of his recognition that we may often know the fact without knowing the cause of the fact. To be continued. *Über die Platonischen Briefe* (pp. 29–52): R. ADAM. – A defense of the authenticity of the seventh letter, and perhaps the thirteenth, with rejection of the second, third, and eighth, and doubt concerning other letters. *Plato als politisch-pedagogischer Denker* (pp. 53–88): R. STUBE. – Plato is to be considered as the prophet of European culture, because he looked upon the State as the instrument of an education for life eternal. *Ein Beitrag zu Heracleits Fr. 67 und 4a* (pp. 88–91): E. LOEW. – *Democrit und Platon* (pp. 92–105): I. H. JENSEN. – Plato does not ignore or supplant the teaching of the atomists, but subordinates that teaching to a teleology, which is based upon a new theory of knowledge. *Der Geist Hegels in Italien* (pp. 106–116): C. D. PFLAUM. – Benedetto Croce's interpretation of Hegel to Italy. Marx's Hegelian influence on

the mass of Italians. *Spinozas Bildnis* (pp. 116–140): A. LEVY. – The authenticity of the newly discovered portrait is disputed especially on the ground of the proportions of nose and lips, and the character of the hair. *Die neuesten Erscheinungen. Historische Abhandlungen. Eingenangene Bücher.*

REVUE DE METAPHYSIQUE ET DE MORALE. September, 1909. *L'orientation de la pensée philosophique de David Hume* (pp. 596–619): L. LÉVY-BRUHL. – The work of Hume is that of a geographer. Any attempt at a further explanation of experience would have been felt by him as an attempt to solve the unsolvable. *Les théories logico-métaphysiques de MM. B. Russell et G. E. Moore* (pp. 620–653): H. DUFUMIER. – A systematic presentation of Mr. Russell's general conception of logic and its relations to neo-realism. *Sur le pragmatisme de Nietzsche (suite et fin)* (pp. 654–702): R. BERTHELOT. – Discusses the question of the usefulness of Nietzsche's theoretic and moral philosophy. *Études critiques. Les études de M. Delacroix sur le mysticisme:* H. NORERO. *Supplément.*

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NOTES AND NEWS

THE number of students at Russian universities during the year 1908–1909 reached the figure 76,900. This number is exclusive of those in the many private higher colleges in the various towns in Russia, which is estimated roughly at about 20,000. The 76,900 students at the universities are distributed as follows: at St. Petersburg in the various department, 28,550; at Moscow, 13,250; at Kharkov, 7,000; at Kiev, 5,900; at Kazan, 3,600; at Tomsk, in the University and the Technological Institute, 2,700; at Warsaw, in the University and the Polytechnic Institute, 1,500; at Odessa University, 3,300; at the Novocherkask Polytechnic Institute, 700; at Helsinfors, in the University and the Technical College, 2,750; at the Riga Polytechnicum, 1,700; at Yuryev, at the University and the Veterinary Institute, 3,350; at the Novaya Alexandria Agricultural Institute, 400; at the Yavoslavl Lyceum, 1,050; at the Yekaterinoslava Mining Institute, 500; at the Nĕžin Philological Institute, 150; at the Saratov University, established this year, 200; at the Vladivistock Institute of Oriental Languages, 300. It was noted in the "Notes and News" of this JOURNAL for August 19 that the foreign students in German universities for the last academic year numbered 3,594. Of this number, 1,578 were Russians. These facts have, it is believed, bearing on an interest in the present educational opportunities and development of Russia.

THE following abstract of a paper on "The Subject-Matter of Psychology" was read by Mr. G. E. Moore before the Aristotelian Society on December 6. "When anything is said to be 'mental,' one or other of five different things may be meant, viz. (1) that it is an act of consciousness; (2) that it is a quality of an act of consciousness; (3) that, though not an act of consciousness, it is related to some mind in precisely the same way in which a person's acts of consciousness are related to mind; (4) that it is a collection of things which are mental in senses (1) or (3), or both; (5) that it is a subject of acts of consciousness, different from any single act or collection of acts. It was contended that some things certainly are 'mental' in senses (1), (2), and (4); but that it is doubtful whether anything is so in senses (3) and (5). Of sense-data it was contended that they are not mental in any of these five senses, even though it may be true of them that they exist only at moments when some one is conscious of them." (*The Athenæum*, Dec. 25.)

THE *British Medical Journal* announces that the Pasteur Institute of Paris will soon receive the capital sum of 30,000,000 francs, the product of the estate of the late M. Osiris. In 1903 M. Osiris founded a triennial prize of £4,000 to be given to "the person who had rendered the greatest service to the human race during the three preceding years." The prize was awarded to Dr. Roux, director of the Pasteur Institute, for the discovery of the anti-diphtheria serum. Dr. Roux, instead of using the sum for his own interests and purposes, gave over the money to the Pasteur Institute. This act, it is rumored, so impressed M. Osiris that he left the bulk of his fortune to the Institute as token of his admiration for the achievements and the generous spirit of Dr. Roux.

AT the fifth annual meeting of the Southern Society for Philosophy and Psychology, held at Charlotte, North Carolina, December 23, 1909, the following officers for the year 1910 were elected: President, Edward Franklin Buchner, Johns Hopkins University; vice-president, Shepherd Ivory Franz, George Washington University; secretary-treasurer, Robert Morris Ogden, University of Tennessee. A. Caswell Ellis, University of Texas, and David Spence Hill, Peabody College for Teachers, were elected members of the council to serve two years, and Bruce R. Payne, University of Virginia, and Haywood J. Pearce, Brenau College, to serve three years.

IT is stated in *Nature* that the inaugural meeting of the China Philosophical Society as held at Tientsin on September 18 under the presidency of the president of the Pei Yang University, Mr. Wang Shoh Lian. Mr. Lian, in his presidential address, pointed out the importance of the existence of such a society in the present stage of China's development, when western learning is being spread over the empire. Papers were also read by Dr. G. Purves Smith on agricultural possibilities of north China, and by Dr. Wu Lien Teh on an example of scientific farming in Chili.

W. DAWSON JOHNSTON, librarian of Columbia University, is preparing for the United States Bureau of Education a report on special collections in libraries of the United States. It is planned to make the publication a record of all collections in public libraries which are of special value, either because of their completeness or because of the rarity of their contents. In order to collect the material for this report the Bureau of Education is sending circulars to all libraries which are thought to possess such collections.

A NEW edition is offered by the Macmillan Company of Edward Caird's "Essays on Literature," which first appeared as a collection in 1892. Of special interest is the essay entitled "The Problem of Philosophy at the Present Time," which compares the reconciliation between religion and sophistry attempted by Plato and Aristotle, with the reconciliation between religion and science needed in 1881, when this lecture of Caird's was first delivered.

THE American Psychological Association has elected the following new officers for the ensuing year: President, Professor Walter B. Pillsbury, of the University of Michigan; members of the Council to serve three years, Professor Ernest H. Lindley, of Indiana University, and Professor Robert M. Yerkes, of Harvard University. Professor A. H. Pierce, of Smith College, was elected secretary-treasurer of the Association.

THE chair of experimental biology at the University of Budapest has been offered by the medical faculty of that University to Professor Jacques Loeb, of the University of California. Professor Loeb lectured last September before the International Congress at Budapest and also delivered a course of lectures in June at the University of Budapest.

AN international subscription is being organized for the purpose of erecting a statue of Lombroso in the city of Verona.